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Quantitative, cross-sectional survey utilising the Corporate Entrepreneurship Assessment Instrument (CEAI) to describe middle managers' perceptions of a South African firm's internal environment in 2018

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Declaration

I hereby declare that the Research Report submitted for the Bachelor of Commerce Honours in Management degree to The Independent Institute of Education is my own work and has not previously been submitted to another University or Higher Education Institution for degree purposes.

Signature:

Name and Surname:

Date:

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Abstract

Corporate entrepreneurship (CE) is critical to a firm's success, particularly in today's dynamic environment (Kontic, et al., 2017). The Corporate Entrepreneurship Assessment Instrument (CEAI) is an instrument that was developed to measure the key internal organisational factors that influence a firm's entrepreneurial activities and outcomes. During the last decade, the role of the middle manager in corporate entrepreneurial activity has been recognised in the literature (Hornsby, et al., 2002). The empirical research on the internal organisational factors that may foster middle manager activity converges on five factors: management support, work discretion, rewards/reinforcement, time availability, and organisational boundaries (Hornsby, et al., 2013). The aim of this study was to conduct a quantitative assessment of middle managers perceptions of their internal environment within a South African firm through the use of the CEAI tool. The results confirmed that the CEAI maintained an acceptable level of reliability for the statistical analyses, and contributed to confirming the validity of the CEAI tool. Through the statistical analysis it was found that middle managers within the South African firm perceive their internal environment as being conducive for corporate entrepreneurial activity. From the findings, recommendations for management and for future research concerning corporate entrepreneurship and the CEAI tool were formulated.

Table of Contents

List of Figures

List of Tables

List of Appendices

“Quantitative, cross-sectional survey utilising the Corporate Entrepreneurship Assessment Instrument (CEAI) to describe middle managers’ perceptions of a South African firm’s internal environment in 2018”

1. Introduction

In this section a background to the study is provided, identifying the rationale and relevance of the study as well as identifying the problem and purpose statement. The research question and hypotheses are also identified.

1.1 Introduction and Contextualisation / Background

In the 21st Century corporate entrepreneurship (CE) has increasingly been recognised as a path to high levels of organisational performance (Hornsby, et al., 2009). When trying to establish an internal environment conducive to entrepreneurial activity, certain factors of the internal environment are controllable by managers; however, without proper assessment of these factors, there can be no understanding of how they are perceived within the organisation. As such, organisations are challenged to measure the extent to which employees perceive the existence of internal factors conducive to corporate entrepreneurial activity. Research suggests that middle managers can have a considerable influence on corporate entrepreneurial activities (Hornsby, et al., 2002). Academic literature has identified five organisational antecedents of entrepreneurial activity: top management support, work discretion, rewards/reinforcement, time availability, and organizational boundaries (Kuratko et al., 1990; Hornsby et al., 1999, 2002, cited in Hornsby et al., 2009). From these antecedents, the corporate entrepreneurship assessment instrument (CEAI) was developed; it is a useful tool for measuring the five organisational elements, structured as a likert-type scale questionnaire. In this study, the researcher collected and analysed data from middle level managers of a South African SME, utilising the CEAI to measure the extent to which middle managers perceived the existence of organisational antecedents of CE within the firm’s internal environment. The research utilised a descriptive design, aiming to accurately reflect the attitudes of the participants through the use of cross-sectional, quantitative questionnaires. The data gathered from these questionnaires was then interpreted using quantitative techniques in order to describe the extent to which the middle managers perceive the South African firm’s internal environment to be conducive to CE activity.

1.2 Rationale

Guth and Ginsberg (1990, cited in Hornsby et al., 2002) state that ‘‘strategic management research that contributes to increasing the frequency and success of corporate entrepreneurship will, in our view, be highly valued in the academic and practitioner communities.” The researcher acknowledges this statement and recognises that research on CE is valued within certain communities and is beneficial to the research area.

Within a South African context, change has become the norm in most organisations. New and improved technology, facilities and equipment are constantly developed and introduced into industries, making change an imperative for organisations’ survival (Werner, 2011). This has created a need for entrepreneurial activity to be embedded within the internal environment of firms. If an organisation is serious about developing its internal environment to promote entrepreneurial activity, then it must seek to measure the specific dimensions associated with an innovative environment. In order to understand the most effective internal environment for corporate entrepreneurial activity, an examination of antecedents to entrepreneurial behaviours is critical (Kuratko, et al., 2014). The use of the Corporate Entrepreneurship Assessment Instrument (CEAI) in measuring these antecedents and the information gained from its results can provide a foundation for improving specific functional areas of a firm; this can then translate into greater entrepreneurial activity on the part of employees (Kuratko, et al., 2014).

In the context of the present study, an internal environment conducive to CE is a modern-day imperative for local companies working to adapt to the constantly changing business environment. Diagnosing the South African SME’s internal environment by measuring the perceived existence of organisational antecedents of CE will provide information that can be utilised in managing the company to become more conducive to entrepreneurial behaviour, and hence more able to adapt to changes in the modern business environment within its sector. From an academic standpoint, the study offers an addition to the body of knowledge concerning CE and the use of the CEAI in a South African context. This is driven by the need for culture-specific knowledge to be generated within the research area (Van Wyk & Adonisi, 2012).

1.3 Problem Statement

The incorporation of CE strategies by firms operating in the modern business environment is an imperative for higher levels of organisational performance (Hornsby, et al., 2009). An assessment of a firm’s internal environment for organisational antecedents of CE is considered to be a prerequisite for effectively managing CE strategies. Within the local context, South Africa remains a developing economy which can be greatly benefitted by the incorporation of CE strategies within local firms, which on a macro level can aid national economic growth. By diagnosing the participating firm’s internal environment for organisational antecedents of CE, the firm was provided with the information required to more effectively manage CE strategies.

In addition, the need for further developments in the research area of CE and use of the CEAI in a South African context has arisen due to the perceived cultural sensitivity of the concept and its measurement, identified by Van Wyk & Adonisi (2011; 2012). Scheepers et al. (2008) conclude that limited research on the corporate entrepreneurial construct has been conducted in South Africa. Further use of the CEAI in relatively under-researched cultural settings is required from research community in order contribute to the body of knowledge concerning the contextual sensitivity of the assessment tool and its effectiveness in different business environments. By using the CEAI tool locally, the present study offered an addition to research concerning CE within a South African context.

1.4 Research Goal/Purpose Statement & Research Question

1.4.1 Research Goal/Purpose Statement

In alignment with the problem statement, the purpose of this quantitative survey study utilising a likert-type scale questionnaire was to measure the extent to which middle managers' perceived the existence of the five organisational antecedents of CE within the firm's internal environment. This is driven by the aim of adding to the growing body of knowledge concerning CE and the CEAI within a South African context, as well as providing the participating firm with useful information that can be utilised in managing their CE strategies. Through the use of the CEAI tool, an evaluation of whether the middle managers perceive the firm's internal environment to be conducive to CE will be attained. The 48 question likert-type scale questionnaire offers an effective analysis of the perceptions of management support, work discretion, rewards/reinforcement, time availability, and organisational boundaries; considered to be the five organisational antecedents of CE. An evaluation of these elements will enable the firm to identify areas that can be managed more effectively in order to promote CE activity within the organisation.

1.4.2 Research Question

To what extent do middle-level managers of the participating South African firm perceive that their organisational antecedents of corporate entrepreneurship within the firm's internal environment are conducive to corporate entrepreneurial activity?

1.5 Hypotheses

The hypotheses will assist in investigating the research topic and answering the research question. Based on previous studies concerning CE in South Africa (van Zyl, 2015), there is an indication that local firms do not establish internal environments that are supportive of entrepreneurial behaviour. Deducing from this study, the CEAI components were expected to be perceived by middle managers as non-supportive of entrepreneurial behaviour. A hypothesis structure containing sub hypotheses (as shown below) was selected based on its viability in previous studies (van Zyl, 2015).

H1: the internal environment is perceived by middle managers as non-supportive of CE

H1a: management support perceived as non-supportive of CE

H1b: work discretion perceived as non-supportive of CE

H1c: rewards/reinforcement perceived as non-supportive of CE

H1d: time availability perceived as non-supportive of CE

H1e: organisational boundaries perceived as non-supportive of CE

2. Literature Review

2.1 Theoretical Framework

An interactive model of corporate entrepreneuring was devised by Jeffrey S. Hornsby, Douglas W. Naffziger, Donald F. Kuratko, and Ray V. Montagna (1993). The framework outlines how the decision to act entrepreneurially occurs as a result of an interaction between organisational characteristics (the focus of the study), individual characteristics, and a precipitating event (usually changes in the work environment). The precipitating event provides the impetus to behave entrepreneurially when other conditions are conducive to such behaviour (Hornsby, et al., 2009). The present research examined the extent to which the organisational characteristics (management support, work discretion, rewards/reinforcement, time availability, and organisational boundaries) occur within the participating firm of the study. These five organisational characteristics can be effectively managed, and so it would be in the best interests of a company to manage its organisational characteristics when attempting to promote corporate entrepreneurial behaviour.

An interpretation of the five organisational characteristics (the focus of the study) is found in the ‘operationalisation’ section. Although dated, the framework and its ‘organisational characteristics’ component is still relevant to the present research, evident in how the framework and its components are still referred to in more current literature (Ireland, et al., 2009) (Hornsby, et al., 2013) (Kuratko, et al., 2015). The CEAI questionnaire used in the data collection for the present study is designed around measuring these five organisational characteristics, making the framework appropriate for the purpose of the study.

Under the metatheoretical position of post-positivism, the research will aim to objectively measure the extent to which these characteristics are perceived by middle managers to exist within the firm’s internal environment. However, the researcher accepts that the pursuit of wholly objective knowledge is not possible under the metatheoretical position (due to the subjective nature of knowledge), but should still be strived towards.

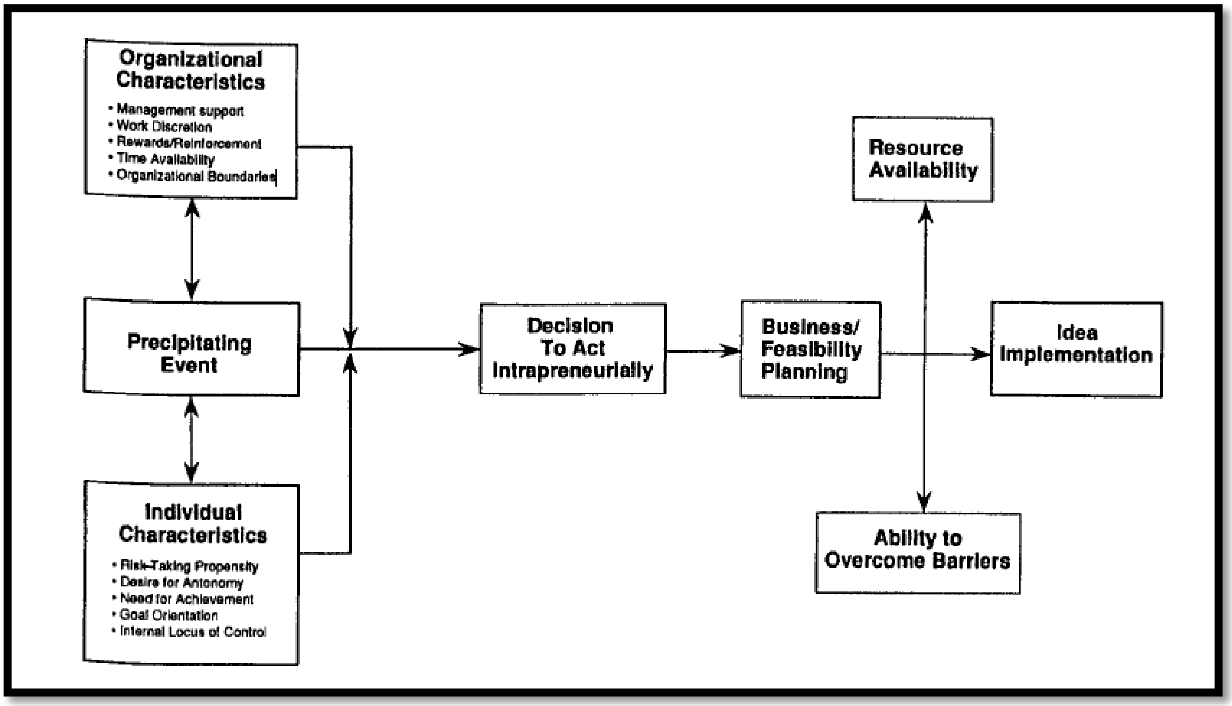

Figure 1: *An interactive model of corporate entrepreneuring* **(Hornsby, et al., 1993)**

2.2 Literature Review

2.2.1 Introduction

The literature review critically analyses relevant literature concerning the research. Corporate entrepreneurship, as a valid and effective area of research has real and tangible benefits for emerging scholars because their work will have a significant impact on an emerging strategy (Kuratko, et al., 2015). The CEAI offers multiple benefits for firms in the form of an internal environment diagnosis for CE. Empirical research on CE and the CEAI in a South African context (Van Wyk & Adonisi, 2012) has shown that the validity of the CEAI (an instrument developed in the USA) when used on a South African sample is questionable, creating a need for further research to be conducted with regards using the CEAI in different cultures.

A comprehensive analysis of academic literature concerning CE and the CEAI is conducted in a thematic manner, looking at the various developments within the research area and how they shape the research to be conducted.

2.2.2 Corporate entrepreneurship (CE) defined

Damanpour (1991) noted that corporate innovation is a broad concept that includes the generation, development, and implementation of new ideas or behaviours. An innovation can be a new product or service, an administrative system, or a new plan or program pertaining to organisational members. In this context, corporate entrepreneurship centres on re-energising and enhancing the firm's ability to acquire innovative skills and capabilities (Damanpour, 1991, cited in Morris et al., 2008). The present study follows this definition of corporate entrepreneurship that recognises the challenges of promoting entrepreneurship within an existing firm. These challenges demand a thorough understanding of the internal conditions that prevail within a firm.

Zahra (1991, cited in Morris et al., 2008) observed that 'corporate entrepreneurship may be formal or informal activities aimed at creating new businesses in established companies through product and process innovations and market developments. These activities may take place at the corporate, division, functional, or project levels; with the unifying objective of improving a company's competitive position and financial performance'. This study acknowledges these objectives (improving competitive position and financial performance) as potential benefits of CE strategies.

Other perspectives on CE are provided by Guth and Ginsberg (1990, cited in Morris et al., 2008) and Sharma and Chrisman (1999, cited in Morris et al., 2008). Guth and Ginsberg (1990) stress that corporate entrepreneurship encompasses two major phenomena: new venture creation within existing organisations and the transformation of organisations through strategic renewal. The present study recognises these two phenomena as possible outcomes of effectively managing organisational antecedents of CE.

Sharma and Chrisman (1999) define CE as the process whereby an individual or a group of individuals, in association with an established company, creates a new organisation or instigates renewal or innovation within the current organisation. With regards to the present study, the focus is primarily on innovation within the organisation.

All the perspectives generally agree that corporate innovation involves allocating resources to generating and implementing new and innovative ideas that aim to grow and improve the organisation. In the context of the present study, the organisational antecedents of corporate entrepreneurship (the variables being measured) are acknowledged as crucial to the development of CE behaviour within the organisation. However, all definitions originate from foreign studies, meaning that the concept of corporate entrepreneurship within a local context may differ.

2.2.3 Role of management in CE

To better understand entrepreneurial actions and the role of management, Hornsby, Kuratko, Shepherd, and Bott (2009) conducted a study of 458 managers at different levels in their firms. They found that the relationship between perceived internal antecedents (as measured by the CEAI mentioned earlier) and entrepreneurial actions (measured by the number of new ideas implemented) differed depending on managerial level. Specifically, the positive relationship between managerial support and entrepreneurial action was stronger for senior- and middle-level managers than for first-level (lower level) managers. The positive relationship between work discretion and entrepreneurial action was also stronger for senior- and middle-level managers than for first-level managers (Kuratko, et al., 2014).

The few studies that have explored managerial level have emphasized the role of first-level managers in a ‘‘bottom-up’’ process of CE (Burgelman, 1983a, 1983b, 1984, as cited in Kuratko et al., 2014). The Hornsby et al. (2009) study offered a counter view to this ‘‘bottom-up’’ perspective, supporting the notion that higher level managers have greater ability to ‘‘make more of’’ conditions in the company and thus implement a greater number entrepreneurial ideas than do first-level managers (Kuratko, et al., 2014).

The present study acknowledges this study conducted by Hornsby et al. (2009) by considering top/middle level managers to be the appropriate population for the purpose of the study.

2.2.4 Innovation and the organisational life cycle

Kuratko and Hodgetts (2007) discuss organisational life cycle stages that include initial venture conceptualisation, start-up activities, venture growth, stabilisation, diversification, strategic renewal, and/or decline.

Greiner's article on 'evolution and revolution as companies evolve' depicted the stages as creativity, direction, delegation, coordination, and collaboration (Morris et al., 2008).

Koratko and Hodgetts generally agree with Greiner that patterns emerge over time. However, Greiner goes further by suggesting that when companies enter a particular stage, they prosper until they reach a crisis point. How the company deals with the crisis determines whether they move on to the next stage in the life cycle, or otherwise end up declining/failing. Therefore each stage requires major and sometimes radical changes in order to overcome crisis points. The demand on management changes over a firm's life cycle, as the scope and nature of operations become more diverse and complex. Each stage poses different strategic challenges, and each requires a different managerial approach. There is an on-going need for changes in how a company is run, including how goals are set, decisions are made, resources are allocated, and performance is assessed (Kuratko and Hodgetts, 2007).

The table below provides a description of company practices as they tend to change through the five stages of development (Morris et al., 2008).

	Stage 1 Creativity	Stage 2 Direction	Stage 3 Autonomy	Stage 4 Coordination	Stage 5 Collaboration
Management Focus	Make and sell	Efficiency of operations	Expansion of market	Consolidation of organisation	Problem solving and innovation
Organisation structure	Informal	Centralised and functional	Decentralised and geographical	Line staff and product groups	Matrix of teams
Top Management Style	Individualistic and entrepreneurial	Directive	Delegative	Watchdog	Participative
Control System	Market results	Standards and cost centres	Reports and profit centres	Plans and investment centres	Mutual goal setting
Management Reward System	Ownership	Salary and merit increases	Individual bonuses	Profit sharing and stock options	Team bonus

Table 1: *Changing Organisational Practices as Companies Evolve* (Morris et al., 2008).

The corresponding company practices for each stage are an indication of what should be implemented by management in order to allow for best practices in corporate entrepreneurship. These practices are tied into the questionnaire, as there prevalence within the firm's internal environment will be measured to an extent.

2.2.5 How corporate entrepreneurship differs from start-up entrepreneurship

Successfully applying the entrepreneurial process within larger, established organisations requires that managers appreciate the unique nature of corporate entrepreneurship **(Kuratko & Hodgetts, 2007)**. Entrepreneurship has long been associated with bold individuals who persevere against the odds in creating a new venture. The entrepreneur is often thought of as a type of hero, and most start-up efforts are fairly optimistic and highly individualistic endeavours. However, corporate entrepreneurship differs in many ways from the common perception given to start-up entrepreneurial ventures. These differences are summarised in the table below:

Table 2: *Corporate Entrepreneurship versus Start-up Entrepreneurship* (Morris et al., 2008).

Start-Up Entrepreneurship	**Corporate Entrepreneurship**
Entrepreneur takes the risk	Company assumes the risks
Entrepreneur 'owns' the concept or idea	Company owns the concept or idea
Entrepreneur owns all or majority of the business	Entrepreneur may have little or no equity in the company
Unlimited potential rewards	Limits rewards for entrepreneur
Once misstep can mean failure	More room for error
Vulnerable to outside influence	More insulated
Independence	Interdependence
Flexibility	Rules, procedures, and bureaucracy
Speed of decision making	Longer approval cycles
Little security	Job security
No safety net	Dependable benefit package
Limited scale and scope initially	Potential for sizeable scale and scope
Severe resource limitations	Access to finances, established facilities etc.

2.2.6 General frameworks for corporate entrepreneurship (CE)

Guth and Ginsberg (1990) have provided a framework for integrating CE into the strategic management of a company. They argue that the domain of CE encompasses two types of processes: internal innovation and strategic renewal. The extent to which corporate innovation occurs and the ways in which it is manifested is driven by factors that can be organised into four domains. First is the external environment, where turbulence is a key driver of entrepreneurship. Second is leadership within the firm, and the extent to which leaders display certain characteristics. The third domain is the aspects of the work environment inside the firm. The final factor is company performance and the extent to which performance is driven by innovative behaviours (Guth & Ginsberg, 1990). The present study acknowledges that the third domain (internal environment) is an influencing factor of corporate innovation. This is applicable to the present study, as the extent to which the internal environment within the firm is conducive to CE behaviour will be analysed.

An alternative framework can be found in the work of Kuratko et al. (2004). These researchers focus on an organisation's ability to sustain entrepreneurship on an on-going basis. They demonstrate that sustainability is contingent upon individual members continuing to undertake innovative activities and upon positive perceptions of these activities by the executive management, which will, in turn, lead to further allocation of necessary organisational support and resources (Kuratko, et al., 2004).

Another perspective approaches entrepreneurship as an overall orientation that drives a company. The focus here is the on-going integration of entrepreneurship throughout the entire organisation, which is very different than viewing it as a discrete activity, event or behaviour. This framework was originally developed by Covin and Slevin (1991, cited in Morris et al., 2008), and it indicates that a firm's entrepreneurial orientation or intensity has direct and positive influence on the company's performance. It does so because it incorporates the organisation's vision and mission, strategies, objectives, structures, operations, and the overall organisational culture. The major purpose of this model is to allow for managerial intervention to foster corporate entrepreneurship (Morris, et al., 2008). The major focuses behind these three frameworks are a revitalisation of personal creativity, product and process innovation, and on-going managerial development in companies. The strategies and insights presented in the models can guide the efforts of managers striving to create work environments that are supportive of entrepreneurial culture.

2.2.7 Innovativeness as a dimension of entrepreneurship

This is concerned with the relative emphasis on concepts or activities that represent leaving behind what is currently available. It is the extent to which a company is doing things that are novel, unique, or different. It means departing from the past and breaking established rules and challenging traditional ways of thinking (Kuratko & Hodgetts, 2007). The three frontiers of organisational innovation are in product, service, and process innovation. Even if a product offering is fairly standard and not unique, highly innovative process innovations are a major source of competitive advantage (Kuratko & Hodgetts, 2007).

Companies today find that they must innovate more than in times past. Much of the pressure to innovate is due to external forces, including the emergence of new and improved technologies, the globalisation of markets, the fragmentation of markets, government deregulation, and dramatic social change. The need for innovation has grown to the extent where financial markets are penalising companies who fail to demonstrate an effective innovation strategy. Additionally, internal pressures to cut costs and develop new capabilities also exist within companies (Morris et al., 2008). Another task for companies is in retaining high-quality employees, which can be done more effectively by displaying an innovative organisational culture where there is constant experimentation and continual learning (Damanpour, 1991).

Companies are also finding they must become faster, with pressure to significantly reduce the time from idea generation to innovation launch. The ability to innovate more extensively and at a faster rate increasingly requires that more departments and functional areas within the firm become heavily involved in the innovation process (Morris, et al., 2008). For too many firms, the tendency is to innovate only when in trouble or in response to a competitor. Managers generally focus on maximising the success of proven products, services, or processes in the face of immediate competitive threats (Damanpour, 1991).

2.2.8 Best practices for effective corporate entrepreneurship

Synetics, a leading international firm specialising in innovation consulting, studied the innovation practices and performance of 150 major US companies (Synetics, 1993). The analysis produced three categories of firms: Stars, Seekers, and Spectators. Stars were highly successful innovators, Seekers were moderately successful innovators, and Spectators acknowledged the importance of innovation but provided little support for it. Stars had a number of characteristics that distinguished them from the other two groups and were critical for sustaining innovation, which included:

- Having CEOs that were heavily involved in fostering innovation
- Defining innovation as critical to long-term company success
- Attaching great importance to the concept of managing change
- Demonstrating an openness to outside ideas
- Having formal programs for idea generation and problems solving
- Creating budgets allocated exclusively to innovation
- Providing rewards for individual creativity and innovation
- Conducting highly productive meetings

The companies that were Stars also tended to outperform the other firms not only in terms of sales and profit growth, but in areas such as employee satisfaction, employee retention, and product/service quality (Synetics, 1993). Due to the potentially outdated nature of the study, some of the characteristics discovered may be irrelevant or at least less relevant in the current context. The study was also conducted on US companies, meaning the characteristics crucial for sustaining innovation may differ for South African companies.

A separate study was conducted by Page (1993, cited in Morris et al., 2008), which focused on product development and management association. The survey used attempted to establish norms across companies in the new product development area. The results indicated norms such as a tendency to have a formal innovative strategy, rely heavily on cross-functional teams, and use formal criteria to measure new product performance (Morris, et al., 2008). This relationship between product development and managerial association is applicable to the present study, as the sample's influence on product development as a component of CE is being measured. However, the study utilises managers at all levels in the collection of data; this may be seen as a weakness for the present study as the focus is on top/middle level managers only.

A third perspective comes from the observations of Gary Hamel (2000), Tom Peters (1997), and Thomas Kuczmarksi *et al.* (2001) (cited in Morris et al., 2008). These authors reinforce many of the previously mentioned findings. They also provide other insights, such as the tendency for highly innovative companies to manage a portfolio of innovations and to have a systematic and well-defined new product development process. These companies involve the entire business in the innovative process, rather than just the product offering. Employees in these high-performing companies demonstrate a passion for innovation and are focused on maximising their innovative efforts (Morris et al., 2008).

2.2.9 Entrepreneurial culture within the organisation

Tropman and Morningstar (1989) examined what they term to be ‘primary values’, and draw implications for how a business should be conducted in order to implement an entrepreneurial culture. For instance, most companies have multiple purposes, but the ‘entrepreneurial firm’ has a strong focus on one overriding purpose. The idea behind this is that organisations should achieve a balance while having a dominant emphasis. Another key focus is the relative emphasis on excellence versus satisfactory performance and comfort (Troopman & Morningstar, 1989).

The Cintas Corporation is an example of a company that embodies an entrepreneurial culture. For instance, it is ownership-driven. Most of the executives have the majority of their net worth invested in Cintas stock. Employees are referred to as partners. At its core, the company’s culture is defined around distinguishing characteristics. These characteristics include being professional, displaying high ethical and moral standards, acting with a sense of urgency, and always striving to improve. This culture drives a very entrepreneurial enterprise (Morris et al., 2008).

The ability to achieve and sustain entrepreneurship in a company is dependent upon a balance between the need for individual initiative and the spirit of cooperation and group ownership of innovation (Morris et al., 2008).

An entrepreneurial culture is also contested against within organisations. Kriegesmann et al. (2005) noted that there is a tendency within companies to develop ‘zero error cultures’, as companies strive to meet ever-higher performance standards in an intensely competitive marketplace. This coupled with traditional reward systems that reinforce short-term positive contributions means that there is a strong emphasis on tried and tested behaviours (Kriegesmann, et al., 2005).

An entrepreneurial culture also means that failure is acknowledge and is sometimes praised in companies. In these types of companies, it is realised that failure goes hand in hand with innovating and learning (Kriegesmann, et al., 2005). However, failure is still feared by employees and is often avoided at all costs. This inevitably leads to a culture of mediocrity being accepted within the organisation.

2.2.10 Conclusion

With the various topics of the research study covered and the relevant literature consulted, a comprehensive overview of the literature utilised in the review can be made.

In defining corporate entrepreneurship (CE), it was concluded that the various perspectives generally agreed that corporate innovation involves allocating resources to generating and implementing new and innovative ideas that aim to grow and improve the organisation (Damanpour, 1991) (Zahra, 1991) (Guth and Ginsberg, 1990).

When analysing the role of management, the researcher concluded that middle level management have a considerable influence over corporate entrepreneurial activity, making them an appropriate sample for the study.

When looking at innovation and the organisational life cycle, both authors concluded that the organisational life cycle involved patterns emerging over time. Kuratko and Hodgetts (2007) took this further by stating that every stage in the life cycle requires major innovational change in order to succeed in transitioning to the next stage.

The differences between corporate and start-up entrepreneurship were outlined, with the general consensus being that corporate entrepreneurship involves less risks and is generally more backed by resources and secure planning (Morris et al., 2008).

Some of the seminal frameworks for corporate entrepreneurship were compared, and the similarities such as a common drive for managerial development, creativity, and product and process innovation were noticed (Covin and Slevin, 1991) (Kuratko, Hornsby and Goldsby, 2004) (Guth and Ginsberg, 1990).

In the discussion on innovativeness as a dimension of entrepreneurship there is an ever-growing need to innovate for companies as they strive to deal with increasing market demands and stiffer competition. Companies are also tasked with internal pressures and combatting the tendency to ‘play it safe’ and rely on trusted methods, which can result in a loss of market share. An innovative nature should also be displayed if companies wish to retain and attract high-performing employees (Morris et al., 2008).

Some of the best practices for innovation were discussed from different perspectives. A few of the similarities were having a formal innovative strategy, rely heavily on cross-functional teams, and using formal criteria to measure new product performance (Synetics, 1993) (Page, 1993).

The discussion on entrepreneurial culture covered how companies should adjust their organisation to form an entrepreneurial culture (Troopman and Morningstar, 1989), and how an entrepreneurial culture is contested within organisation due to a tendency to 'remain safe' and rely on tried and tested behaviours (Kriegesmann et al., 2005).

Overall, the literature consulted displays a multifaceted view of CE and CE behaviour within organisations. The literature comprehensively confirms that an internal environment conducive to CE behaviour is crucial in sustaining CE strategies. This is a key driver for the present study, as the researcher intends to measure the internal environment as an antecedent of corporate entrepreneurship.

2.3 Operationalisation

The operationalisation of the data collection instrument (the CEAI) and its main points of measurement (essentially the key focuses of the study) are adapted from the seminal works of Kuratko et al. (2014). The instrument and its components are an integral part of the study, with their measurement being utilised to achieve the research goal and ascertain the acceptance or non-acceptance of the formulated hypothesis.

Corporate Entrepreneurship Assessment Instrument (CEAI): A diagnostic tool used for assessing managers' perceptions of the five major dimensions critical to creating an entrepreneurial/innovative environment. This instrument provides an indication of a firm's likelihood of being able to successfully implement an innovative strategy, and highlights areas of the internal work environment that should be the focus of on-going development efforts (Kuratko, et al., 2014). The CEAI questionnaire was utilised in the data collection and analysis processes of the study.

Top management support: The extent to which the middle managers perceive that top managers support facilitate and promote entrepreneurial behaviour, including the championing of innovative ideas and providing the resources people require to take entrepreneurial actions. Top management support has been found to have a direct positive relationship with an organisation's innovative outcomes (Kuratko, et al., 2014). The top management support section of the CEAI questionnaire consists of 19 likert scale statements, and represents the first component of the research hypothesis.

Work discretion: The extent to which the middle managers perceive that the organisation tolerates failure, provides decision-making latitude and freedom from excessive oversight, and delegates authority and responsibility to lower-level managers and workers. Research suggests entrepreneurial opportunities are often best recognised by those with discretion over how to perform their work, as well as by those encouraged to engage in experimentation (Kuratko, et al., 2014). The work discretion section of the CEAI questionnaire consists of 10 likert scale statements, and represents the second component of the research hypothesis.

Rewards/Reinforcement: The extent to which middle managers perceive that the organisation uses systems that reward based on entrepreneurial activity and success. Reward systems that encourage risk taking and innovation have been shown to have a strong effect on individuals' tendencies to behave in entrepreneurial manners. Numerous studies have identified 'reward and resource availability' as a principal determinant of entrepreneurial behaviour by middle-level managers (Kuratko, et al., 2014). The rewards/reinforcement section of the CEAI questionnaire consists of 6 likert scale statements, and represents the third component of the research hypothesis.

Time availability: The perception of middle managers that the workload schedules ensure extra time for individuals and groups to pursue innovations, with jobs structured in ways to support such efforts and achieve short- and long-term organisational goals. Research suggests time availability among managers is an important resource for generating entrepreneurial initiatives. For example, the availability of unstructured or free time can enable would-be corporate innovators to consider opportunities for innovation that may be precluded by their required work schedules (Kuratko, et al., 2014). The time availability section of the CEAI questionnaire consists of 6 likert scale statements, and represents the fourth component of the research hypothesis.

Organisational boundaries: The extent to which middle managers perceive that there are flexible organisational boundaries that are useful in promoting entrepreneurial activity through enhancing the flow of information between the external environment and the organisation, as well as between departments/divisions within the organisation. Innovative outcomes emerge most predictably when innovation is treated as a structured and purposeful (vs. chaotic) process. Consistent with this point, organisation theorists have long recognised that productive outcomes are most readily accomplished in organisational systems when uncertainty is kept at manageable levels; this can be achieved through setting boundaries that induce, direct, and encourage coordinated innovative behaviour across the organization. In short, organisational boundaries can ensure the productive use of innovation-enabling resources (Kuratko, et al., 2014). The organisational boundaries section of the CEAI questionnaire consists of 7 likert scale statements, and represents the fifth component of the research hypothesis.

3. Methodology

Within the following section, the research paradigm, design, population and sample are presented along with how the data collection and analysis processes were conducted.

3.1 Research Paradigm

A paradigm/tradition can be described as ‘a cluster of beliefs, and dictates in a particular discipline what should be studied, how research should be done, and how results should be interpreted’ (Bryman, 2012:630, cited in Du Plooy-Cilliers et al., 2014). The chosen tradition dictates what questions are considered worthy of investigation and what processes are required for the answers of these questions to be acceptable.

Physicists Werner Heisenberg and Niels Bohr chipped away at the dogmatic view of positivism, turning the emphasis from absolute certainty to probability; they portrayed the scientist as one who constructs knowledge, instead of just passively noting the laws of nature (Crotty, 1998). Their argument is that “no matter how faithfully the scientist adheres to scientific method research, research outcomes are neither totally objective, nor unquestionably certain” (Crotty, 1998, p. 40). This view is known as post-positivism (or logical empiricism); it describes a less strict form of positivism. Logical empiricists (or post-positivists) support the idea that social scientists and natural scientists share the same goals for research and employ similar methods of investigation.

Post-positivism is a metatheoretical stance that critiques and amends positivism. While positivists emphasise independence between the researcher and the individual under analysis, post-positivists accept that theories, background, knowledge and values of the researcher can influence what is observed.

Objectivity of the results was pursued by recognising the possible effects of biases. Post-positivists consider both quantitative and qualitative methods to be valid approaches. Time and resource constraints guided the present study towards only using qualitative methods for data collection and analysis.

The epistemology of a paradigm/tradition dictates the nature of knowledge and the ways of knowing it. It deals with questions such as what counts as knowledge and what are the limits of knowledge within the paradigm (Du Plooy-Cilliers, et al., 2014). Positivists view knowledge as that which can be tested empirically, can be confirmed, and verified. Post-positivists believe that this perfect objectivity cannot be achieved but is approachable. The present study acknowledged that the results were not a fully objective reflection of the scenario.

The ontology of a paradigm/tradition deals with what reality is and how reality exists. Post-positivists concur with positivists that an objective reality does exist but maintain that it can be known only imperfectly because of the researcher's human limitations (Kawilich, 2012). In the context of the present study, the researcher acknowledged that perfect objectivity of the results exists, but cannot be fully attained.

The axiology of a paradigm gives an insight into what is valued within a particular paradigm or tradition. For the positivist, the researcher's value achieving objectivity and neutrality during the inquiry process. Post-positivists, however, recognise that the theories, hypothesis and background knowledge held by the investigator can strongly influence what is observed, how it is observed and the outcome of what is observed (Kawilich, 2012). Therefore, although objectivity and empirical results are valued, they are not considered to be entirely possible to achieve. In the context of the study, the researcher values the empirical results, but accepts that they are not totally objective due to influence of the researcher and the participants.

A paradigm's methodological position is a guideline for solving problems. It includes the research methods that are deemed most appropriate for collecting and analysing data in order to generate knowledge about the study (Kawilich, 2012). Within the post-positivism paradigm, the present research will take a descriptive approach to analyse the current phenomenon (manager's perceptions of CE antecedents). The study utilised a quantitative questionnaire survey for data collection, and quantitative descriptive statistics were used in the data analysis.

3.2 Research Design / Conceptual Approach

For the purpose of the present study, the design followed a quantitative approach to collecting and analysing the data. Quantitative methods are commonly used under the positivist paradigm as it deals with observable (empirical) evidence (Du Plooy-Cilliers, et al., 2014). The use of a quantitative research design will allow the researcher to generate data using self-administered questionnaires each consisting of 48 likert-type scale questions. These likert scale questionnaires will effectively elicit data regarding the participant's attitudes towards the existence of the five elements being studied (management support, etc.). Posing multiple likert scale questions for each topic will generate an aggregated attitude towards each element.

A cross-sectional design was followed by the researcher, as the aim of the research was to elicit the data once, at one point in time (Du Plooy-Cilliers, et al., 2014). Therefore the data will be collected from participants only once, with no repeat collections. This will accurately depict the attitudes of top/middle managers towards the existence of the five elements at a single point in time. A cross-sectional design is the only feasible option for the researcher due to time constraints only allowing a single instance of data collection and analysis. It should be noted that the study's focus was not on the change in managers' perceptions, and so a longitudinal study was not a practical design for the research's purpose.

Induction and deduction are the two research approaches proposed by Saunders and Lewis (2012). Deduction is defined as a "research approach that involves the testing of a theoretical proposition by using a research strategy specifically designed for the purpose of its testing" (Saunders and Lewis, 2012:108). A deductive approach is applicable for the cross-sectional surveys, as the questionnaire is a formulation of existing theory and tools (CE theory and the CEAI tool). Saunders and Lewis (2012) further explain the main types of research as exploratory, explanatory, and descriptive. Descriptive research is defined as "research designed to produce an accurate representation of persons, events or situations" (p. 111). Due to the social nature of the research it will be descriptive in nature, as the research entails generating an accurate representation of the participants' attitudes towards the five elements being studied.

3.3 Population

Since the study was aimed at the individuals within the South African organisation, it was middle managers who formed the source of the data and hence formed the level of measurement. The responses which were gathered from individuals were then aggregated in order to perform the statistical analysis at an organisational level, which thus formed the level on analysis.

A population is defined by Wiid and Diggines (2013:186, cited in Du Plooy-Cilliers et al., 2016) as ‘the total group of people or entities (social artefacts) from whom information is required’. In the present study, information is required from people; more specifically middle-level managers (the target population). The study analysed middle manager’s perceptions of a South African firm’s internal environment; the accessible population of the study was therefore all middle managers employed by local firms (with the shared characteristic of the population being that they are employed in middle-level managerial positions at a firm).

The researcher recognises that using middle managers is appropriate for the study due to previous research indicating that (1) the relationship between managerial support (a CEAI component) and entrepreneurial action is more positive for middle level managers than it is for lower level managers, and (2) the relationship between work discretion (a CEAI component) and entrepreneurial action is more positive for middle-level managers than it is for first-level managers (Hornsby, et al., 2009). The researcher therefore considers all middle level managers of the firm to be an appropriate population for the study.

3.4 Sampling

After determining the accessible population, the next step is to develop the list of people that will be directly involved in the study (Du Plooy-Cilliers, et al., 2014). In the case of quantitative research, a representative sample of the population is commonly used to generalise the research results to the rest of the population. In cognisance of this, all middle-level managers from one of the South African firms to which research access was available were selected for the sampling frame. Using a non-probability sampling method was appropriate for the sampling frame, as a common trait existed amongst the target population. This decision is also supported by the limited time and resources of the researcher, which can be managed more effectively through using a non-probability sampling method.

Since the full sampling frame was available to participate in the study, purposive sampling, a non-probability sampling method, assisted in attaining the most appropriate individuals to participate in the study based on a set list of characteristics (Du Plooy-Cilliers, et al., 2014). The characteristics that defined the individuals forming the sampling frame were (1) individuals employed at the South African firm being studied, (2) being employed in a managerial role, and (3) occupying a middle level management role within the firm. Based on these parameters, the sample size for the study was the 15 middle-level managers employed by the South African firm. These 15 individuals formed the selected sample for the study, all of who agreed to participate in the survey and were sent the CEAI questionnaire.

It should be noted that there are a number of considerations that have to be taken into account when considering the sample size. The time constraints of the study meant that there is scarce time to indulge in sampling, contacting participants, collecting data, analysing data, and writing up the findings. At this novice level, a large sample size is also not practicable for the study’s context. Most notably, the study’s aim was to analyse a single firm’s internal environment through middle-level managers; therefore the study was constrained by the number of middle-level managers employed by the selected firm.

3.5 Data Collection Methods

As stated in the title of the study, the researcher carried out a cross-sectional study. This is in-part due to a single instance of data collection being required. The use of a cross-sectional survey design in the form of a 48 question likert-type scale questionnaire, known as the corporate entrepreneurship assessment instrument (CEAI), is a viable measurement tool that will be used in the collection of data for the study. This is because the understanding of the impact of organisational antecedents (the key focus of the study) on entrepreneurial behaviour is based on the empirical research of Kuratko and his colleagues (Hornsby, Kuratko, & Zahra, 2002; Kuratko et al., 1990). From that research an instrument was developed, the CEAI, as a diagnostic tool used for assessing managers' perceptions of the five major dimensions critical to creating an entrepreneurial/innovative environment (shown in Appendix B). These dimensions, known as the organisational antecedents of CE, are: (1) management support (2) work discretion/autonomy (3) rewards/reinforcement (4) time availability, and (5) organisational boundaries (Hornsby, et al., 2002).

The use of a likert-type scale questionnaire will allow respondents to indicate their degree of agreement or disagreement with the 48 statements (Du Plooy-Cilliers, et al., 2014). In-line with the original design of the CEAI, the questionnaires will use a five-point scale, ranging from strongly disagree to strongly agree. Each section of the questionnaire will contain statements relating to one of the five elements discussed earlier. This will generate an aggregated attitude towards each element from the respondents.

Some of the benefits of issuing a self-administrated questionnaire like the CEAI include: (1) it is relatively inexpensive (2) it is comparatively less time consuming (3) the questionnaire can be filled in anonymously, which will be ensured in the present study. This will encourage the respondents to answer questions without expecting any negative repercussions for their answers. Lastly, (4) individuals are usually more willing to tick boxes (or in this case enter a number on the rating scale) than they are to write or type out long answers (Du Plooy-Cilliers, et al., 2014).

Specific benefits of the CEAI include that is essentially ‘pre-tested’ (evident in the past studies that used the instrument, displayed in Appendix C), although a further pre-test will be conducted in order to ensure that the questionnaire is a practical tool for the specific study. The participants of the pre-test will be convenience sampled as the results of these questionnaires are not important to the study (note that only 2 participants will be involved in the pre-test due to time and resource constraints, as well as the importance of carefully interpreting both individual’s feedback). If any reforms to the instrument are suggested by pre-test participants and are feasible for the study, then the appropriate adjustments will be made. Concerns identified in the pre-test may be the number of questions included in the questionnaire, as well as whether the questionnaire is understandable and clear within the local context.

The CEAI questionnaire template provides a strong introduction with clear and simple instructions (see Appendix B), which will be backed up by further clarifications of the questionnaire provided by the researcher (expanded on in the ‘ethical considerations’ section). The logical sequence and grouping of questions will allow for ease in interpreting and answering the questionnaire (Bryman, 2012).

3.6 Data Analysis Methods

Applying statistical analysis to a set of data removes the guesswork from the interpretation of data (Du Plooy-Cilliers, et al., 2014).

Quantitative data analysis will order and structure the data collected; this is appropriate as the likert-type scale questionnaire will yield numerical results. The data tallying template designed for the CEAI (displayed as Appendix C) will be used to total the combined score for each section (e.g.: management support). Note that negatively scored questions (e.g.: question 21) from the questionnaire are now re-reversed for the scoring process.

With the sections totalled, the researcher was then able to conduct the statistical analysis. The test for internal consistency and reliability was conducted before the analysis in order to ensure reliability. By totalling the results, the researcher was able to identify the aggregated answer for each individual's section (e.g.: a total score of 38 for management resulting in an aggregate score of 2 for the section). Through the use of the likert-scale questionnaire, the researcher was thus able to gain an understanding of the average attitude of participants with regards to each section being studied. In statistical terms, this is known as the mean of the data (Du Plooy-Cilliers, et al., 2014).

Other ways of expressing the central point of the data, namely the median and mode, will also be identified for use in further analysis. The median of the data set is essentially the 'middle value' when the data is arranged from numerically lowest to numerically highest (Du Plooy-Cilliers, et al., 2014). In the case of the CEAI questionnaire, section 1 (management support) contains 19 questions and so the 10^{th} value will represent the section's median. On the other hand, the mode is the value that appears most often in the data set (Du Plooy-Cilliers, et al., 2014). If a participant answers the management support section mostly with what represents '4' on the likert scale (indicated by 'agree' on normally ordered scales, and 'disagree' on reverse ordered scales), then the mode for the management support for that questionnaire will be 4. Although attaining the mode and median may not be crucial to answering the research question, they are still useful in providing further insight into the data (e.g.: a preference towards the middle option of the likert scale can be identified by determining the mode).

While looking at any one individual employee’s scores on the instrument’s factors may be interesting, that is not the main intent of the instrument and the research study. In general, higher scores on the CEAI factors are related to increased entrepreneurial activity, so the goal should be to aggregate employee scores across top/middle level management team to assess the organisation’s readiness for implementing a corporate entrepreneurship strategy and to take appropriate actions to remedy areas identified as problematic.

This was crucial in testing the hypotheses of the study. As an example, if the sample’s mean score for the management support section is 4, then this will indicate that the management support within the firm’s internal environment is in fact supportive of CE strategies (part of the alternative hypothesis).

When looking at the data retrospectively, low scores in any one section of the CEAI suggest the need for development activities to enhance the firm’s readiness for entrepreneurial behaviour in order to establish the successful implementation of a corporate entrepreneurship strategy.

4. Findings and Interpretation of Findings

This section presents the results that have been obtained from the data collection and analysis process, and from these findings a critical evaluation is made in the broader context of the research problem. The research methods and strategies utilised to maintain the validity and reliability of the results are also identified.

4.1 Presentation and Interpretation of Findings

A sampling technique was used whereby questionnaires were sent out to the accessible population of 15 respondents. Of these 15 questionnaires, 10 were completed and returned on time (66.7% response rate). The 5 questionnaires which were not completed and returned within the allocated time were removed from the study. The 10 questionnaires that were returned were satisfactorily completed and eligible for the statistical analysis.

Figure 2 indicates the aggregated scores for each of the five sections within the CEAI questionnaire. Each figure represents an aggregated score for the ten participants (e.g. the ten questionnaires generated an aggregated score of 3.45 for management support). Since a five point Likert scale was used for sampling, the choice “not sure” or 3 for a question signified a neutral answer, which also represents the neutral mean for the questionnaire and its five components. An aggregate score of more than 3 for any one component indicates that the component is perceived by the participants as being conducive for corporate entrepreneurship (e.g. management support generated an aggregate score of 3.45, which indicates that the participants perceive their management support to be conducive for corporate entrepreneurial activity); alternatively, an aggregate score of less than 3 for any one component indicates that the component is perceived by the participants as being non-conducive for corporate entrepreneurship (e.g. organisational boundaries generated an aggregate score of 2.67, which indicates that the participants perceive their organisational boundaries to be non-conducive for corporate entrepreneurial activity).

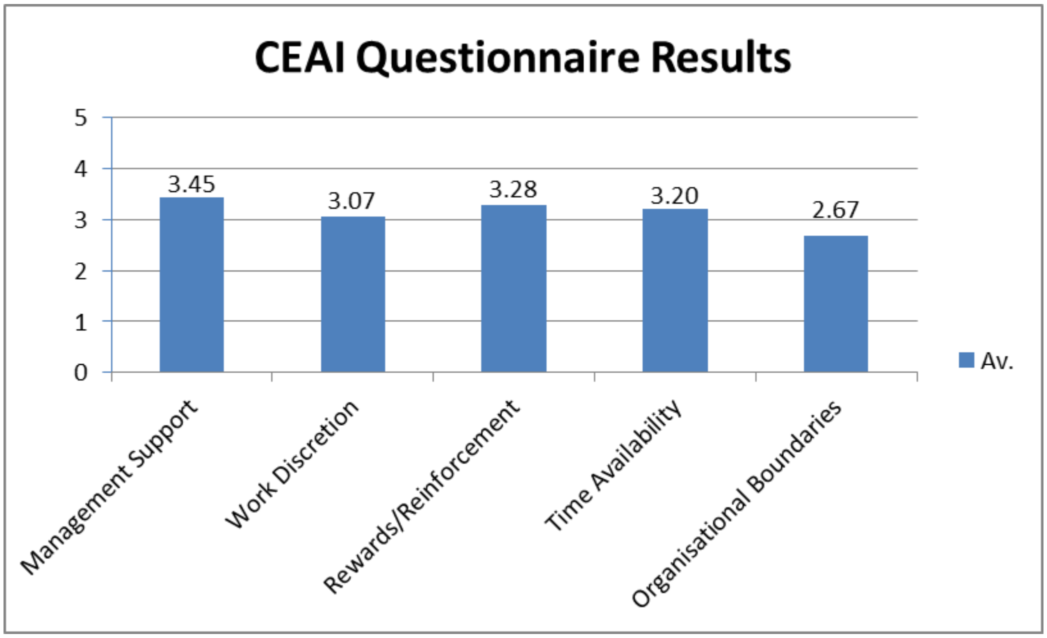

Figure 2: CEAI Questionnaire Results

4.1.1 Management Support

Consisting of 19 questions (of which 0 are negatively worded), management support's neutral (3) scores are 57 per participant (19x3) and 30 per question (3x10). Utilising the data gathered, management support generated an aggregate total score of 65.5 per participant, and 34.5 per question (perceived as conducive). The data skewness for participant scoring was deemed acceptable (-0.5 < data skewness <0.5). Further descriptive statistics yielded from the data are displayed in the tables below.

Participant Scoring	
Descriptive stat.	Score
Mean	65.5
Median	66
Standard Deviation	4.81
Skewness	-0.24
Range	16
Minimum	57
Maximum	73

Table 3: Management Support Participant Scoring

Question Scoring	
Descriptive stat.	Score
Mean	34.47
Median	35
Standard Deviation	2.46
Skewness	0.04
Range	8
Minimum	30
Maximum	38

Table 4: Management Support Question Scoring

4.1.2 Work Discretion

Consisting of 10 questions (of which 1 are negatively worded), work discretion's neutral (3) scores are 30 per participant (3x10) and 30 per question (3x10). The scoring for the negatively worded questions (Q21) was reversed before the statistical analysis. Utilising the data gathered, work discretion generated an aggregate total score of 30.7 per participant and per question (perceived as conducive). The data skewness for participant scoring exceeded the recommended range but was deemed acceptable as the skewness statistic marginally exceeded the recommended range (-0.5 < data skewness <0.5). Further descriptive statistics yielded from the data are displayed in tables below.

Participant Scoring	
Descriptive stat.	Score
Mean	30.7
Median	31.5
Standard Deviation	2.63
Skewness	-0.60
Range	8
Minimum	26
Maximum	34

Table 5: Work Discretion Participant Scoring

Question Scoring	
Descriptive stat.	Score
Mean	30.7
Median	31
Standard Deviation	2.67
Skewness	0.18
Range	8
Minimum	27
Maximum	35

Table 6: Work Discretion Question Scoring

4.1.3 Rewards/Reinforcement

Consisting of 6 questions (of which 0 are negatively worded), rewards/reinforcement's neutral (3) scores are 18 per participant (3x6) and 30 per question (3x10). Utilising the data gathered, rewards/reinforcement generated an aggregate total score of 19.7 per participant, and 32.8 per question (perceived as conducive). The data skewness for participant scoring exceeded the recommended skewness range (-0.5 < data skewness <0.5), but was still accepted for the study as the overall skewness statistic for the data set was not adversely affected. Further descriptive statistics yielded from the data are displayed in tables below.

Participant Scoring	
Descriptive stat.	Score
Mean	19.7
Median	20.5
Standard Deviation	2.06
Skewness	-1.41
Range	7
Minimum	15
Maximum	22

Table 7: Rewards/Reinforcement Participant Scoring

Question Scoring	
Descriptive stat.	Score
Mean	32.83
Median	32.5
Standard Deviation	2.48
Skewness	0.17
Range	6
Minimum	30
Maximum	36

Table 8: Rewards/Reinforcement Question Scoring

4.1.4 Time Availability

Consisting of 6 questions (of which 3 are negatively worded), time availability's neutral (3) scores are 18 per participant (3x6) and 30 per question (3x10). The scoring for the negatively worded questions (Q36; Q39; Q40) was reversed before the statistical analysis. Utilising the data gathered, time availability generated an aggregate total score of 19.2 per participant and 32 per question (perceived as conducive). The data skewness for participant scoring exceeded the recommended range but was deemed acceptable as the skewness statistic marginally exceeded the recommended range (-0.5 < data skewness <0.5). Further descriptive statistics yielded from the data are displayed in tables below.

Participant Scoring	
Descriptive stat.	Scoring
Mean	19.2
Median	20
Standard Deviation	2.90
Skewness	-0.56
Range	10
Minimum	14
Maximum	24

Table 9: Time Availability Participant Scoring

Question Scoring	
Descriptive stat.	Scoring
Mean	32
Median	32.5
Standard Deviation	4.24
Skewness	-0.05
Range	12
Minimum	26
Maximum	38

Table 10: Time Availability Question Scoring

4.1.5 Organisational Boundaries

Consisting of 7 questions (of which 6 are negatively worded), organisational boundary's neutral (3) scores are 21 per participant (3x7) and 30 per question (3x10). The scoring for the negatively worded questions (Q42; Q43; Q44; Q45; Q47; Q48) was reversed before the statistical analysis. Utilising the data gathered, organisational boundaries generated an aggregate total score of 18.7 per participant and 26.7 per question (perceived as non-conducive). The data skewness for participant scoring was deemed acceptable (-0.5 < data skewness <0.5). Further descriptive statistics yielded are displayed in tables below.

Participant Scoring	
Descriptive stat.	Scoring
Mean	18.7
Median	19
Standard Deviation	1.49
Skewness	-0.36
Range	5
Minimum	16
Maximum	21

Table 11: Organisational Boundaries Participant Scoring

Question Scoring	
Descriptive stat.	Scoring
Mean	26.71
Median	26
Standard Deviation	4.35
Skewness	1.19
Range	13
Minimum	22
Maximum	35

Table 12: Organisational Boundaries Question Scoring

4.1.6 CEAI internal consistency and reliability test

To ensure the collected data was consistent and reliable, it was first subjected to a reliability test in which a Cronbach's alpha (α) of 0.7 (DeVellis, 2011) was required for the data to be considered for further analysis

The Cronbach's alpha values for the CEAI components are detailed in Table 13. Based on research conducted by Hornsby et al. (2013) in which four of the five CEAI elements were tested for internal consistency, it was found that each of the elements received moderate to high Cronbach's alpha (α) rating, shown in Table 13. To ensure the data reliability for the study, an alpha (α) of 0.7 (DeVellis, 2011) was required for the data to be considered for further analysis. The alpha values from a comparative study done in the South African business environment (Scheepers et al., 2008) were also utilised to measure whether the results obtained were consistent. Table 13 displays the required alpha (α), comparative alpha (α), and the obtained alpha (α) for each CEAI component.

CEAI Component	**Hornsby et al. (2013) α**	**Scheepers et al. (2008) α**	**Required α**	**Obtained α**
Management Support	0.63	0.92	0.7	0.82
Work Discretion	0.89	0.85	0.7	0.74
Rewards/Reinforcement	0.79	0.88	0.7	0.76
Time Availability	0.75	-	0.7	0.69
Organisational Boundaries	-	0.68	0.7	0.67

Table 13: Cronbach's alpha (α) values

The obtained alpha (α) values for Time Availability and Organisational Boundaries were deemed acceptable for further statistical analysis on the premise that the alpha (α) values were marginally lower than the recommended alpha (α) value. Based on the results obtained it was therefore concluded that the CEAI tool proved to be an acceptably reliable instrument to gather the data required from participants.

4.1.7 Main findings

An understanding of the empirical evidence gained, confirmed the validity of the CEAI instrument and adds to the limited base of research in the South African context. The Corporate Entrepreneurship Assessment Instrument was found to be a reliable measure of the internal environment for corporate entrepreneurship.

Some concern was raised around the relatively low reliability of the organisational boundaries component of the CEAI instrument (Van Wyk & Adonisi, 2011) (Hornsby, et al., 2013). The reliability deviation of the five CEAI components was considered acceptable, and thus all components were included in the analysis.

The hypothesis testing (section 5.1.3) concluded that middle-level managers within the South African firm perceive their internal environment to be conducive for corporate entrepreneurial activity. This was a consequence of the positive scores of management support, work discretion, time availability, and rewards/reliability sections, which when offset against the negative score of the organisational boundaries section returned an overall positive score.

Another study conducted by Scheepers et al. (2008) used a preceding version of the CEAI tool to assess a total of 315 South African organisations. When a similar statistical analysis was performed, it was found that management support, work discretion, rewards/reinforcement and organisational boundaries were all supportive of entrepreneurial behaviour. The similarity in outcomes for three of the five CEAI components suggests that the internal environment for corporate entrepreneurship is perceived similarly by other South African organisations. The underwhelming score for the organisational boundaries component suggests that the South African firm should aim to utilise the information gained from the CEAI to increase the conduciveness of their organisational boundaries for corporate entrepreneurial activity. More detailed recommendations for the firm are made in the Heuristic Value section.

4.3 Validity and Reliability

The terms ‘validity’ and ‘reliability’ are most commonly used in quantitative research (Du Plooy-Cilliers, et al., 2014).

The reliability of the research method/instrument is dependent on whether the same results would be produced if the research were to be repeated using the same method or instrument (Du Plooy-Cilliers, et al., 2014). If the study were to be carried out on the same population (middle-level managers within the firm), it is expected that the questionnaires will yield similar results (provided no changes by management in cognisance of the present study have occurred within the firm). The CEAI questionnaire contains negatively worded statements in order to increase the reliability of data gathered. The CEAI tool has been critiqued in previous South African studies for a lack of reliability (Van Wyk & Adonisi, 2011) (van Zyl, 2015) in certain components, but maintained reliable results in the present study, shown in the internal consistency and reliability test.

Validity is the extent to which the research instrument reflects the reality of the constructs being measured (Du Plooy-Cilliers, et al., 2014). With regards to the data collection instrument used, the CEAI consists of 48 Likert-style questions. The instrument has been shown to be psychometrically sound as a viable means for assessing areas requiring attention and improvement in order to reach the goals sought when implementing an innovative strategy (Hornsby, et al., 2013). Appendix C highlights the studies that have demonstrated the validity of the CEAI and the correlations identified. The interpretation of the empirical evidence gained from the survey confirms the validity of the CEAI tool.

5. Conclusion

To conclude, the research question, research problem, and hypotheses are addressed. The heuristics of the study, as well as the ethical issues and perceived limitations of the study are also discussed.

5.1 Research Question, Problem, Hypotheses Addressed

5.1.1 Research Question

The research question was posed as “to what extent do middle-level managers of the participating South African firm perceive that their organisational antecedents of corporate entrepreneurship within the firm’s internal environment are conducive to corporate entrepreneurial activity”. The findings indicated that four of the organisational antecedents were perceived by the sample as being conducive of corporate entrepreneurial behaviour (management support, work discretion, rewards/reinforcement, and time availability), while one of the organisational antecedents was perceived as being non-conducive of corporate entrepreneurial behaviour (organisational boundaries). In analysing the overall aggregated CEAI scores, the data indicated that middle-level managers of the participating South African firm perceive that their internal environment is conducive to corporate entrepreneurial activity. This was subject to further statistical analysis (section 5.1.3), which confirmed the above statement.

5.1.2 Research Problem

The research identified the impetus for corporate entrepreneurial strategies to be implemented within the local business environment. Predicaments affected the business environment make it necessary for South African businesses nurture corporate entrepreneurship to achieve a competitive advantage (Van Wyk & Adonisi, 2011). Hence, the entrepreneurial climate should be assessed in businesses to implement and promote a proactive corporate entrepreneurial strategy. This is especially important to ensure sustainable economic development (Alam et al., 2010, cited in Van Wyk & Adonisi, 2011). Through assessing the perceptions of middle managers utilising the CEAI tool, the study offered a comprehensive analysis of the South African firm's internal environment for corporate entrepreneurship. The findings gleaned from the data can be utilised in developing a corporate entrepreneurial strategy, discussed further in the Heuristic Value section.

It was identified that further use of the CEAI tool in relatively under-researched cultural settings was required in order to contribute of knowledge concerning the contextual sensitivity of the assessment instruments. The study offered an addition to research utilising the CEAI within a South African context (Van Wyk & Adonisi, 2011) (van Zyl, 2015). The reliability of the data was measured and a comparative analysis was conducted in the Internal Consistency and Reliability Test section.

5.1.3 Hypothesis

Since a five point Likert scale was utilised, the choice of "not sure" or 3 for a question signified a neutral answer. The neutral mean was therefore calculated as the number of questions per component multiplied by three (e.g. the neutral mean for 'management support' being 57). A sample mean higher than this number would be supportive of the hypothesis, and a sample mean lower would be non-supportive. This is represented in Table 14.

CEAI Component	No. of Questions	Neutral Mean
Management Support	19	57
Work Discretion	10	30
Rewards/Reinforcement	6	18
Time Availability	6	18
Organisational Boundaries	7	21
Overall CEAI Score	48	144

Table 14: CEAI neutral mean figures

With the neutral mean for each component identified, the null and alternative hypotheses could then be represented as shown in Table 15 below.

CEAI Component	Null Hypothesis H0	Alternative Hypothesis Ha
Management Support	$\mu \geq 57$	$\mu < 57$
Work Discretion	$\mu \geq 30$	$\mu < 30$
Rewards/Reinforcement	$\mu \geq 18$	$\mu < 18$
Time Availability	$\mu \geq 18$	$\mu < 18$
Organisational Boundaries	$\mu \geq 21$	$\mu < 21$
Overall CEAI Score	$\mu \geq 144$	$\mu < 144$

Table 15: Null and alternative hypotheses

In accordance with the parameters shown in Table Y, the hypothesis test was classified as a one-sided lower-tailed test. I n this instance, the null hypothesis will be rejected in favour of the alternative hypothesis only when the sample mean evidence is below the neutral mean. The t-test statistics was calculated for this analysis using the sample frame members due to the total population size being unknown; this is shown in Figure 3 below.

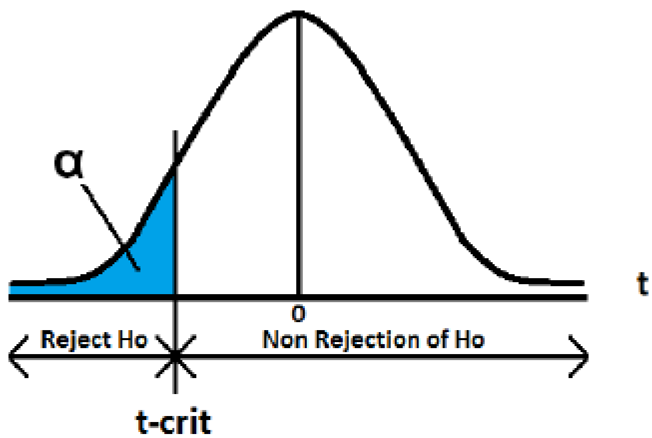

Figure 3: Lower-tailed t-test (van Zyl, 2015)

To determine the t-crit statistics, the MS Excel built in software function (TINV) was utilised to generate a t-crit value for the CEAI components, as shown in Table 16 below.

CEAI Component	**N**	**α**	**t-crit**
Management Support	10	0.05	-1.812
Work Discretion			
Rewards/Reinforcement			
Time Availability			
Organisational Boundaries			
Overall Score			

Table 16: T-crit values

The t-stat was then calculated for each CEAI component utilising the formula shown below:

$$t-stat = \frac{\bar{x} - \mu}{\frac{s}{\sqrt{n}}}$$

Where:

$\bar{x} = sample\ mean$

$s = sample\ standard\ deviation$

$n = sample\ size$

$\mu = single\ mean$

(Wagner, 2013)(p.200)

The results obtained from the data are displayed in Table 17 below:

CEAI Component	$\bar{x}$	s	n	μ	t-stat
Management Support	57	4.81	10	65.5	5.59
Work Discretion	30	2.63	10	30.7	0.84
Rewards/Reinforcement	18	2.06	10	19.7	2.61
Time Availability	18	2.9	10	19.2	1.31
Organisational Boundaries	21	1.49	10	18.7	-4.88
Overall CEAI Score	144	8.87	10	153.6	3.42

Table 17: Obtained CEAI component t-stat

With the t-crit and t-stat calculated it was then determined whether the t-stat falls within the region of rejection or the region of non-rejection. The results are shown in Table 18 below:

<table>
<tr><th>CEAI Component</th><th>t-crit</th><th>t-stat</th><th>Result</th><th>Decision</th></tr>
<tr><td>Management Support</td><td rowspan="6">-1.812</td><td>5.59</td><td>t-crit < t-stat</td><td rowspan="4">Since the t-stat falls in the region of non-rejection of H0 there was insufficient sample evidence at the 5% level of significance to reject H0 in favour of H1</td></tr>
<tr><td>Work Discretion</td><td>0.84</td><td>t-crit < t-stat</td></tr>
<tr><td>Rewards/Reinforcement</td><td>2.61</td><td>t-crit < t-stat</td></tr>
<tr><td>Time Availability</td><td>1.31</td><td>t-crit < t-stat</td></tr>
<tr><td>Organisational Boundaries</td><td>-4.88</td><td>t-crit > t-stat</td><td>Since the t-stat falls in the region of rejection of H0, there was sufficient evidence at the 5% level of significance to reject H0 in favour of H1</td></tr>
<tr><td>Overall CEAI Score</td><td>3.42</td><td>t-crit < t-stat</td><td>Since the t-stat falls in the region of non-rejection of H0 there was insufficient sample evidence at the 5% level of significance to reject H0 in favour of H1</td></tr>
</table>

Table 18: CEAI t-stat evaluation

The results from the analysis are summarised in the table below:

Hypothesis	**CEAI Component**	**Effect on Entrepreneurial Behaviour**
H1a	Management Support	Supportive
H1b	Work Discretion	Supportive
H1c	Rewards/Reinforcement	Supportive
H1d	Time Availability	Supportive
H1e	Organisational Boundaries	Non-supportive
H1	Overall CEAI Score	Supportive

Table 19: Overall CEAI Evaluation

5.2 Ethical Considerations

McMillian and Schumacher (2001, citied by Maree 2016) emphasised the importance of a researcher to follow ethical guidelines to ensure both the researcher and participants avoid unethical behaviour.

5.2.1 Participants

The participating middle-level managers of the firm were ensured to understand that they were participating in the study, providing their consent to participate in the survey and answer the CEAI questionnaire. A template of the form of consent is displayed as Appendix D. When utilising the CEAI questionnaire, the researcher ensured confidentiality by not requiring participants to identify themselves on their questionnaire. This reserved the confidentiality of the participants' answers. The participating firm was also not identified for confidentiality purposes.

The researcher avoided using any incentives to entice the selected sample to participate in the study; the researcher ensured that the selected sample was willing to participate in the study. The participants and the firm as a whole were not placed in a position of risk or harm during the study; this was ensured by openly discussing the survey process (administration, completion, and returning of questionnaires) with participants and responding to any queries or concerns. The researcher disclosed the methodology as well as avoided any form of deception towards participants to uphold the integrity of the study; this was done through explicitly explaining the purposes of the study to the participants (Du Plooy-Cilliers, et al., 2014).

5.2.2 Researcher

The researcher aimed to be professional and respectful towards the participants; this was done through explaining the research procedure, maintaining a respectful attitude, and assuring queries and concerns of the participants over the research period were resolved. The participation of the South African firm and the individuals who are included in the survey will also be acknowledged by the researcher. The researcher also ensured that minimal personal bias affects the study; this was done through being ethically accountable and honest through disclosing information in a transparent manner. The researcher aimed to conduct the research at the highest standard and avoided falsifying information or distorting the results; this was be done by upholding a high ethical code.

The data collected from the research process was utilised for the sole purpose of the study, along with providing the firm with an analysis of their internal environment. The researcher ensured that the information was not misused and that any research methods that could be harmful or unsuited to the study were avoided; this was done through following the appropriate procedure stipulated in the data collection and analysis section (Du Plooy-Cilliers, et al., 2014). The researcher also familiarised themselves with the ethical guidelines and upheld the integrity of the research study at all stages by following the stipulated guideline and methodologies of the IIE Research and Postgraduate Studies Policy.

5.3 Limitations

The perceived constraints of the study are identified in an effort to increase the research's validity and reliability. A perceived limitation of the study was the restriction on the time available to conduct the research; this affected the amount of information that could be attained and incorporated into the study within the allotted time frame. Due to this, the researcher ensured that the research process was not excessively time consuming and that each step in the research process was planned appropriately and time-efficiently.

Another perceived limitation to the study was the possibility that participants would withdraw from the study, and therefore reduce the sample size. In order for the quantitative research results to be more reliable and generalizable, a sufficient sample size is required. The researcher adhered to the sample size parameters for quantitative studies at an Honours level by ensuring that the South African firm selected for the study had a sufficient number of willing participants who were eligible to participate in the survey.

A perceived limitation of conducting the survey was the possibility of cultural and language barriers obstructing the participants from being fully able to comprehend and answer the CEAI questionnaire. All participants disclosed that they were comfortable with answering the questionnaire in English, and any of the participants' further linguistic concerns with the questionnaire were resolved by the researcher.

The questionable reliability of the CEAI questionnaire for use in analysing South African firms (Van Wyk & Adonisi, 2011) (van Zyl, 2015) was acknowledged. However, this was viewed as a benefit of the study, as indications that the measurement tool was not fully effective in eliciting the appropriate information from the selected sample in the local context indicated a need for further development of the tool; this view is aligned to by the abovementioned studies.

5.4 Heuristic Value

The purpose of this study was to analyse the internal environment of a South African firm in order to measure the middle-level managers' perceived existence of the five organisational antecedents of CE. The impetus for this research to be conducted had arisen from the modern day context that has made CE strategies a business imperative for success. The information elicited from this study aimed to contribute to the greater body of knowledge concerning CE and the CEAI, and more specifically how they are understood in a South African context. The study also offered the participating firm a comprehensive analysis of their internal environment. More specifically, the CEAI was utilised to assess and evaluate the South African firm's internal work environment. This information could then be utilised by the firm in ways that support entrepreneurial behaviour, which can become the foundation for successfully implementing a corporate innovation strategy. Kuratko et al. (2014) align with this, stating that the use of the CEAI tool and the information gained from its results can provide a foundation for improving specific areas of the organisation that can translate into greater entrepreneurial activity on the part of employees - the first and most important step in developing a company-wide strategy for entrepreneurial activity (Kuratko, et al., 2014). The benefits of conducting the research for the firm will depend greatly on the organisation's evaluation of CE strategies and their potential benefits.

In line with the limitations that were discussed, the following recommendations were formulated:

Within previous studies, the CEAI has been scrutinised for its reliability when utilised in a South African context (Van Wyk & Adonisi, 2012) (Van Wyk & Adonisi, 2011); reforms to the instrument may be required in further research in cognisance of its adaptability, or lack of, in different cultural contexts. Future research regarding the CEAI instrument when used to assess local companies should aim to sample a broader audience of firms in order to make a more accurate representation of the total population. The sample size for each participating firm should also be maximised, so that significant conclusions can be drawn for each participating firm.

The CEAI instrument that was utilised performed as a diagnostic tool to identify the strengths and weaknesses of the firm's internal environment. The knowledge ascertained from the assessment can be used by the South African firm in a variety of ways, including:

- Creating perception alignment between management and employees (Marvel, et al., 2007)
- Conducting a 'training needs analysis' to determine which aspects should be addressed through training (Van Wyk & Adonisi, 2011)
- Creating a guide to inform aspects of the corporate entrepreneurship strategy and enhance corporate entrepreneurial actions (Gupta, et al., 2004)
- Developing a sensitisation and continuous measurement tool to promote corporate entrepreneurial facets and behaviours (Hornsby, et al., 2002) (Hornsby, et al., 2008)

Essentially the CEAI instrument serves to gain a better understanding of the firm's entrepreneurial process and provides some insight for realignment of strategy (Ireland, et al., 2009) (Kuratko, et al., 2001) and culture (Cameron & Quinn, 2011) so as to allow middle-level managers to display more innovative entrepreneurial behaviours.

5.5 Closing Statement

Based on the research conducted, findings were ascertained and new insights were gathered. The CEAI tool was found to be a useful and reliable diagnostic tool, used to describe the South African firm's internal environment for corporate entrepreneurship through the perceptions of their middle-level managers. The main finding showed that the observed population perceived their internal environment for corporate entrepreneurship to be supportive of corporate entrepreneurial behaviour. This result was inconsistent with some previous studies which utilised the CEAI tool in a South African context (van Zyl, 2015) and consistent with others (Scheepers, et al., 2008). The finding suggests that middle managers perceive their management support, work discretion, rewards/reinforcement, and time availability to be conducive for corporate entrepreneurial activity, but view their organisational boundaries as being non-supportive of this. The finding suggests that the opportunity exists for the realignment of organisational strategy (Kuratko, et al., 2001) (Ireland, et al., 2009) and culture (Cameron & Quinn, 2011) so as to enable more conducive organisational boundaries. The results have contributed towards a further understanding of corporate entrepreneurial activity and the CEAI tool in a South African context. Limited research still exists in this field (Scheepers, et al., 2008); suggestions for future research have been proposed.

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Appendices

Appendix A: Updated Concept Document

(Please refer to the next page)

Research Purpose/ Objective	Primary Research Question	Research Rationale	Seminal Authors/ Sources	Lit Review – Conceptual Framework	Paradigm	Approach	Data Collection Method(s)	Ethics	Anticipated Findings	References
Measure the middle level manager's perceived existence of the organisational antecedents of CE within the firm.	*To what exent do the middle managers of the participating firm perceive the existence of the organisational antecedents of corporate entrepreneurship within the firm's internal environment?*	*Research promoting the awareness of CE is valued and beneficial to the CE communities* *An internal work environment conducive to CE is a modern day imperative for firms*	*D Kuratko* *J Hornsby* *J Covin* *M Morris* *R Ireland* *S Zahra*	Theme 1: CE defined Theme 2: CE and management Theme 3: Innovation and the org life cycle Theme 4: How corp entrepreneurship differs from start-up Theme 5: Frameworks for CE Theme 6: Innovativeness Theme 7: Best practices Theme 8: Entrepreneurial culture	Post-positivism Epistemology: objective knowledge with be pursued, but is not entirely possible Ontology: an objective reality can only be known imperfectly Axiology: modify the value-free positivist belief because of the influence of the researcher's knowledge on the study.	*Quantitative* **Population** Middle level managers within the firm	*Quantitative, cross-sectional survey in the form of self-administered questionnaires* *CEAI questionnaire (likert scale)*	*Protecting the participant's from harm during the research* *Avoid researcher influence/manipulation of results*	*The manager's perception of the existence of the organisational antecedents of CE within the firm's internal environment.*	(Bryman, 2012) (Du Plooy-Cilliers, et al., 2014) (Hornsby, et al., 2002) (Hornsby, et al., 2013) (Hornsby, et al., 1993) (Ireland, et al., 2009) (Kuratko, et al., 2014) (Van Wyk & Adonisi, 2012) (van Zyl, 2015)
Research Problem	**Secondary Questions/ Hypotheses/ Objectives**	**Key Concepts**	**Key Theories**			**Sampling**	**Data Analysis Method(s)**	**Limitations**	**Anticipated Contribution**	
Measuring the perceived existence of antecedents of CE is required by the firm to manage CE strategies. Contextual knowledge on CE and the CEAI is required.	*The internal environment is/is not conducive to CE*	*CE* *CEAI* *Management support* *Work discretion* *Time availability* *Rewards / reinforcement* *Organisational boundaries*	*Framework of corporate entrepreneurship (Hornsby et al., 1993)*			Non-probability sampling Purposive sampling 15 selected sample	Unit of analysis is people (middle level managers) Data will be tallied using the CEAI scoring tool The aggregated score for the sample for each section (e.g.: management support) will be calculated	*Time: cross-sectional, single instance of data collection only viable option* *Resource: no research team, no financial resources*	*Add to the body of knowledge concerning CE and the CEAI when studied in a South African context* *Provide information to the firm concerning their internal environment in relation to CE.*	

Appendix B: CEAI Questionnaire (Kuratko, et al., 2014)

We are interested in learning about how you perceive your workplace and organization. Please read the following items. Using the scale below please indicate how much you agree or disagree with each of the statements. If you strongly agree, write "5." If you strongly disagree write "1." There are no right or wrong answers to these questions so please be as honest and thoughtful as possible in your responses. All responses will be kept strictly confidential. Thank you for your cooperation!

Strongly Disagree	*Disagree*	*Not Sure*	*Agree*	*Strongly Agree*
1	2	3	4	5

Section 1: Management support for corporate entrepreneurship

— 1. My organization is quick to use improved work methods.
— 2. My organization is quick to use improved work methods that are developed by workers.
— 3. In my organization, developing one's own ideas is encouraged for the improvement of the corporation.
— 4. Upper management is aware and very receptive to my ideas and suggestions.
— 5. A promotion usually follows from the development of new and innovative ideas.
— 6. Those employees who come up with innovative ideas on their own often receive management encouragement for their activities.
— 7. The "doers on projects" are allowed to make decisions without going through elaborate justification and approval procedures.

— 8. Senior managers encourage innovators to bend rules and rigid procedures in order to keep promising ideas on track.
— 9. Many top managers have been known for their experience with the innovation process.
— 10. Money is often available to get new project ideas off the ground.
— 11. Individuals with successful innovative projects receive additional rewards and compensation beyond the standard reward system for their ideas and efforts.
— 12. There are several options within the organization for individuals to get financial support for their innovative projects and ideas.
— 13. People are often encouraged to take calculated risks with ideas around here.
— 14. Individual risk takers are often recognized for their willingness to champion new projects, whether eventually successful or not.
— 15. The term "risk taker" is considered a positive attribute for people in my work area.
— 16. This organization supports many small and experimental projects, realizing that some will undoubtedly fail.
— 17. An employee with a good idea is often given free time to develop that idea.
— 18. There is considerable desire among people in the organization for generating new ideas without regard for crossing departmental or functional boundaries.
— 19. People are encouraged to talk to employees in other departments of this organization about ideas for new projects.

Section 2: Work discretion

— 20. I feel that I am my own boss and do not have to double check all of my decisions with someone else.
— 21. Harsh criticism and punishment result from mistakes made on the job.
— 22. This organization provides the chance to be creative and try my own methods of doing the job.
— 23. This organization provides the freedom to use my own judgment.
— 24. This organization provides the chance to do something that makes use of my abilities.
— 25. I have the freedom to decide what I do on my job.
— 26. It is basically my own responsibility to decide how my job gets done.
— 27. I almost always get to decide what I do on my job.
— 28. I have much autonomy on my job and am left on my own to do my own work.
— 29. I seldom have to follow the same work methods or steps for doing my major tasks from day to day.

Section 3: Rewards/Reinforcement

— 30. My manager helps me get my work done by removing obstacles and roadblocks.
— 31. The rewards I receive are dependent upon my innovation on the job.
— 32. My supervisor will increase my job responsibilities if I am performing well in my job.
— 33. My supervisor will give me special recognition if my work performance is especially good.
— 34. My manager would tell his/her boss if my work was outstanding.
— 35. There is a lot of challenge in my job.

Section 4: Time availability

— 36. During the past three months, my workload kept me from spending time on developing new ideas.
— 37. I always seem to have plenty of time to get everything done.
— 38. I have just the right amount of time and workload to do everything well.
— 39. My job is structured so that I have very little time to think about wider organizational problems.
— 40. I feel that I am always working with time constraints on my job.
— 41. My co-workers and I always find time for long-term problem solving.

Section 5: Organizational boundaries

— 42. In the past three months, I have always followed standard operating procedures or practices to do my major tasks.
— 43. There are many written rules and procedures that exist for doing my major tasks.
— 44. On my job I have no doubt of what is expected of me.
— 45. There is little uncertainty in my job.
— 46. During the past year, my immediate supervisor discussed my work performance with me frequently.
— 47. My job description clearly specifies the standards of performance on which my job is evaluated.
— 48. I clearly know what level of work performance is expected from me in terms of amount, quality, and timelines of output.

Appendix C: CEAI Validity Tests (Kuratko, et al., 2014)

Authors	Findings
Hornsby, Kuratko, and Montagno (1999)	• U.S. and Canadian managers perceive the workplace similarly in terms of entrepreneurial climate as measured by the CEAI. • Levels of intrinsic satisfaction of Canadian managers are lower than in the U.S. • Overall levels of entrepreneurial behaviors are similar between the U.S. and Canada but for Americans, entrepreneurial behavior is significantly related to the existence of the CEAI factors.
Hornsby, Kuratko, and Zahra (2002)	• Exploratory and confirmatory factor analyses yielded the same five-factor solution for the CEAI. • Management level differences were found for all the factors except the rewards/reinforcement factor.
Kuratko, Hornsby, and Bishop (2005)	• Job satisfaction serves as a mediator between CEAI factors and new ideas offered and implemented (R-squared = .78).
Rutherford and Holt (2007)	• CE mediates the relationship between the CEAI antecedents and individual entrepreneurial outcomes.
Hornsby, Kuratko, Shepherd, and Bott (2009)	• Management support, rewards/reinforcement, and autonomy/discretion were significantly correlated with number of ideas implemented. • Management level moderated the relationship between management support and ideas implemented and autonomy/discretion and ideas implemented. Specifically, senior and middle managers were likely to implement more entrepreneurial ideas than frontline managers.
Goodale, Kuratko, Hornsby, and Covin (2011)	• R-squared of .10 between CEAI factors and innovation performance. • R-squared of .30 when moderators of operations control and risk control are entered into the model.
van Wyk and Adonisi (2012)	• Significant positive correlations between extrinsic job satisfaction and the corporate entrepreneurship sub-scales of work discretion, rewards, and innovative initiatives. • The market orientation sub-scales of intelligence generation and responsiveness each correlated positively with the corporate entrepreneurship sub-scales of management support and risk acceptance, and rewards. • Responsiveness correlated positively with innovative initiatives and financial support. Intrinsic job satisfaction correlated positively with the sub-scales of corporate entrepreneurship work discretion and rewards. • Extrinsic job satisfaction correlated positively with the corporate entrepreneurship sub-scales of work discretion and rewards. • The flexibility sub-scale formality correlated positively with management support and risk acceptance, and innovative initiatives. • The flexibility sub-scale authoritarianism correlated negatively with the corporate entrepreneurship sub-scale of sufficient time.
Hornsby, Kuratko, Holt, and Wales (2013)	• Assessing the convergent validity of the CEAI composite and individual factors, the CEAI composite—EO relationship was .32. • When considering the factors of the CEAI, management support was the most strongly correlated at r = .45 ($p < .01$). EO was less strongly correlated with the other CEAI factors but these relationships were positive and significant. These included work discretion (r = .17, $p < .01$), rewards/reinforcement (r = .15, $p < .01$), and time availability (r = .13, $p < .01$).

Appendix D: CEAI Scoring for Data Analysis (Kuratko, et al., 2014)

Scale 1: Management Support for Entrepreneurship

Statement						
1	1	2	3	4	5	
2	1	2	3	4	5	
3	1	2	3	4	5	
4	1	2	3	4	5	
5	1	2	3	4	5	
6	1	2	3	4	5	
7	1	2	3	4	5	
8	1	2	3	4	5	
9	1	2	3	4	5	
10	1	2	3	4	5	
11	1	2	3	4	5	
12	1	2	3	4	5	
13	1	2	3	4	5	
14	1	2	3	4	5	
15	1	2	3	4	5	
16	1	2	3	4	5	
17	1	2	3	4	5	**Total**
18	1	2	3	4	5	**Score**
19	1	2	3	4	5	**(Scale 1)**
Sub-Totals	☐ +	☐ +	☐ +	☐ +	☐ =	☐

Scale Score = Total Score (19)

☐

Scale 2: Work Discretion

Statement						
20	1	2	3	4	5	
*21	5=1	4=2	3	2=4	1=5	
22	1	2	3	4	5	
23	1	2	3	4	5	
24	1	2	3	4	5	
25	1	2	3	4	5	
26	1	2	3	4	5	
27	1	2	3	4	5	**Total**
28	1	2	3	4	5	**Score**
29	1	2	3	4	5	**(Scale 2)**
Sub-Totals	☐ +	☐ +	☐ +	☐ +	☐ =	☐

Scale Score = Total Score divided by (10)

☐

**Item 21 revised scores.*

Scale 3: Rewards/Reinforcement

Statement						
30	1	2	3	4	5	
31	1	2	3	4	5	
32	1	2	3	4	5	
33	1	2	3	4	5	**Total**
34	1	2	3	4	5	**Score**
35	1	2	3	4	5	**(Scale 3)**
Sub-Totals	[ ] +	[ ] +	[ ] +	[ ] +	[ ] =	[ ]

Scale Score = Total Score divided by (6)

[ ]

Scale 4: Time Availability

Statement						
*36	5=1	4=2	3	2=4	1=5	
37	1	2	3	4	5	
38	1	2	3	4	5	
*39	5=1	4=2	3	2=4	1=5	**Total**
*40	5=1	4=2	3	2=4	1=5	**Score**
41	1	2	3	4	5	**(Scale 4)**
Sub-Totals	[ ] +	[ ] +	[ ] +	[ ] +	[ ] =	[ ]

Scale Score = Total Score divided by (6)

[ ]

**Items 36, 39, 40 are revised scores.*

Scale 5: Organizational Boundaries

Statement						
*42	5=1	4=2	3	2=4	1=5	
*43	5=1	4=2	3	2=4	1=5	
*44	5=1	4=2	3	2=4	1=5	
*45	5=1	4=2	3	2=4	1=5	
46	1	2	3	4	5	**Total**
*47	5=1	4=2	3	2=4	1=5	**Score**
*48	5=1	4=2	3	2=4	1=5	**(Scale 5)**
Sub-Totals	[ ] +	[ ] +	[ ] +	[ ] +	[ ] =	[ ]

Scale Score = Total Score divided by (7)

[ ]

**Items 42, 43, 44 , 45, 47, and 48 are revised scores.*

Appendix E: Explanatory Information Sheet and Consent Form for Participants

To whom it may concern,

My name is Cameron Bell and I am a student at Varsity College Westville campus. I am currently conducting research under the supervision of Gareth Gray about corporate entrepreneurship and the firm's internal environment. I hope that this research will enhance our understanding of how the organizational characteristics conducive to corporate entrepreneurship are perceived within the firm.

I would like to invite you to participate in my study. In order to explain to you what your participation in my study will involve, I have formulated questions that I will try to fully answer so that you can make an informed decision about whether or not to participate. If you have any additional questions that you feel are not addressed or explained in this information sheet, please do not hesitate to ask me for more information. Once you have read and understood all the information contained in this sheet and are willing to participate, please complete and sign the consent form below.

What will I be doing if I participate in your study?

I would like to invite you to participate in this research because you occupy a top/middle level managerial position within the firm. If you decide to participate in this research, I would like to include you in participating in the self-administered questionnaire survey. The questionnaires will contain likert scale questions with answers ranging from 'strongly disagree' to 'strongly agree', and will consist of questions regarding the internal environment of the firm in relation to corporate entrepreneurship. These questionnaires can be completed at any time suitable for the participant once they have been administered.

You can decide whether or not to participate in this research. If you decide to participate, you can choose to withdraw at any time or to decide not to answer particular interview questions.

Are there any risks/ or discomforts involved in participating in this study?

Whether or not you decide to participate in this research, there will be no negative impact on you. There are no direct risks or benefits to you if you participate in this study. You might, however, indirectly find that it is helpful to talk about your firm's internal environment in relation to corporate entrepreneurship. If you find at any stage that you are not comfortable with the line of questioning, you may withdraw or refrain from participating.

Do I have to participate in the study?

- Your inclusion in this study is completely voluntary;
- If you do not wish to participate in this study, you have every right not to do so;
- Even if you agree to participate in this study, you may withdraw at any time without having to provide an explanation for your decision.

Will my identity be protected?

I promise to protect your identity. I will not use your name in any research summaries to come out of this research and I will also make sure that any other details are disguised so that nobody will be able to identify you. I would like to ask your permission to record the interviews, but only my supervisor, I and possibly a professional transcriber (who will sign a confidentiality agreement) will have access to these recordings. Nobody else, including anybody at Varsity College Westville, will have access to your interview information. I would like to use quotes when I discuss the findings of the research but I will not use any recognisable information in these quotes that can be linked to you.

What will happen to the information that participants provide?

Once I have finished all interviews, I will write summaries to be included in my research report, which is a requirement to complete my Bachelor of Commerce Honours in General Management. You may ask me to send you a summary of the research if you are interested in the final outcome of the study.

What happens if I have more questions about the study?

Please feel free to contact me or my supervisor should you have any questions or concerns about this research, or if there is anything you need to know before you decide whether or not to participate.

You should not agree to participate unless you are completely comfortable with the procedures followed.

My contact details are as follows:
Cameron Bell

The contact details of my supervisor are as follows:
Gareth Gray

Consent form for participants

I,____, agree to participate in the research conducted by Cameron Bell about describing the firm's internal environment with regards to corporate entrepreneurship

This research has been explained to me and I understand what participation in this research will involve. I understand that:

1. I agree to be interviewed for this research.
2. My confidentiality will be ensured. My name and personal details will be kept private.
3. My participation in this research is voluntary and I have the right to withdraw from the research at any time. There will be no repercussions should I choose to withdraw from the research.
4. I may choose not to answer any of the questions that are asked during the research interview.
5. I may be quoted directly when the research is published, but my identity will be protected.

___________________________ ________________________

Signature Date

Appendix F: Ethical Clearance Letter

Appendix G: SafeAssign Report